

**Research, Engineering and Development
Advisory Committee**

**ATS Subcommittee Presentation
April 30, 2002**

Mr. John Kern

Thank You -

Mr. Paul Drouilhet for his outstanding
Leadership as Chairman of the ATS Subcommittee.

A special thank you to MITRE for hosting our meetings.

Mr. Ray LaFrey for taking the time to edit all the
recommendations.

Subcommittee Logistics

Membership:

The Subcommittee currently has 22 members representing a large group of professionals.

Meetings:

Most recent meeting 2 ½ days at CAASD
Next meeting July 23-25 at NASA Ames

Subcommittee Role:

After hours of debate the Subcommittee has a clear understanding of the roles and responsibilities with FAA and NASA.

Subcommittee on Air Traffic Services

John Kern, Chair

Albert Albrecht

Albert Babbitt

Mark Cato

Dallas Denery

Paul Drouilhet

Ralph Eschenbach

Paul Fiduccia

John Fielding

Aaron Gellman

John Hansman

Andrew Lacher

Raymond LaFrey

Rick Linger

John McCarthy

Joseph McCormick

John Olcott

Lynne O'Rourke

Neil Planzer

Sieg Poritzky

Jack Ryan

Bob Schwab

Robert Simpson

Andres Zellweger

Recommendation 1

R&D Issues for the 2010-2020 OEP Agenda

The FAA, with assistance from RTCA, will continue to develop the Operational Evolution Plan for 2002-2010 time frame.

The committee recommends that the FAA identify the key R&D issues and key enabling technologies that should be addressed now for the 2010-2020 time frame. We further recommend that a REDAC working group be formed to develop those issues and report their findings by the winter 2003 REDAC meeting. Key Issues thus far:

1. Develop Future Operations Concept
 - What will be the air-ground balance of responsibility?
 - What will be the long-term evolution of the NAS?
 - R&D Plan, etc.
2. Most future concepts call for more automated ATC functions
 - Will the human continue to be the safety net?
 - If so, how can future systems be built to enhance the humans ability to take over when the automation fails or can't solve problem

Recommendation 2

Research Under the Performance Based Organization

The subcommittee is concerned about the increased FAA attention to near term problems. With the establishment of the PBO, there is an opportunity to provide new leadership and focus for research in the ATM area; this notion and others were included in the February 4, 2002, REDAC Letter to Administrator Garvey. The subcommittee reiterates the need for the FAA/PBO to include an organization or function that is responsible for planning the evolution of the NAS, and recommends that that organization also be responsible for managing Air Traffic Services related R&D

Recommendation 3

Obstacles to the successful transition of R&D products

The subcommittee is concerned about the significant engineering and human factors difficulties encountered during the operational implementation of certain FAA R&D products. The Sub-Committee recommends a working group be formed to review recent programs (including those perceived as unsuccessful and successful), to identify obstacles and risks to successful implementation, and to identify methods to avoid such problems in the future. It is proposed that this be accomplished by a joint working group comprised of members from the REDAC ATS and Human Factors Subcommittees, and other subject matter experts, and that they report their findings and recommendations at the Fall 2002 REDAC Committee meeting.

Recommendation 4

R&D Weather and Wake Vortex Research Funding

The aviation weather and wake vortex research activities are both important to civil aviation. The aviation weather program continues to provide major operational benefits; and, recent progress in wake vortex research indicates the potential for substantive benefits in the near-term. The Subcommittee therefore recommends that FY2004 Aviation Weather Research program be supported at the requested base level and the Wake Vortex Program component be supported at an additional \$3 M above the \$1M in the base (equal to the FY02 enacted level), and that the overall ATS R&D funding be raised accordingly.

Recommendation 5

Separation Standards

The subcommittee observes that, with few exceptions, separation standards have not significantly changed in the last several decades in spite of significant improvements in radar surveillance and navigation. The subcommittee recommends that the FAA examine existing separation standards associated with ATC procedures and determine areas where such standards can be reduced. It would also be useful to provide the committee with a white paper that summarizes the basis for the current minimum separation standards.

Recommendation 6

University Grants (a recommendation to Congress)

The movement of funds from R&D to F&E has disallowed grants to universities. It is recommended that FAA be allowed to use F&E for research grants to universities as well as to FAA Centers of Excellence.

Observation 1

NASA

The subcommittee notes that the NASA ATM R&E budget is declining, as evidenced by the AvSTAR support this year. With the increasing dependence on NASA for the R&D base for NAS modernization, and with the expected recovery of the air transportation system in 2003-4, the subcommittee recommends that FAA aggressively support the NASA ATM budget request before Congress.

Observation 2

Simulation facilities

The subcommittee observed that the FAA is developing a modeling and simulation facility to understand the benefits of OEP 2010. It was also observed that the NASA VAM activity is developing modeling and simulation facilities with similar goals, and that industry and Mitre CAASD are also making major investments in this area.

The subcommittee requests FAA provide a briefing later this year that describes the research questions being addressed, the standards being used for their development, and how the industry, FAA, CAASD, and NASA activities are being coordinated. The ATS Subcommittee intends to form a working group to review these activities and report the findings and recommendations to the REDAC by the Fall 2002 meeting.

Observation 3

Benefits of Situational Awareness and Decision Support Tool

The subcommittee notes that there appears to be more benefits emerging from technology that improves situational awareness than technology to provide aides to decision making.

Observation 4

Leveraging Avionics Investments

The committee again notes the on-going investments in advanced avionics, especially within general aviation, and recommends that FAA research include development of new operational procedures, at locations where capacity is a problem, that take advantage of these airborne capabilities. For example, the use of aircraft intent information toward improved air traffic management should be leveraged. The committee also recommends that FAA recognize, in their planning activities, the actual equipage rates of 8.33Khz radios, VDL-2, and 1090 Level-2 data links, and facilitate the introduction of compatible ground systems.

Observation 5

Safe Flight 21 Metrics

The Subcommittee observes a lack of objective measures of performance for the Safe Flight 21 program. Also, the Safe Flight 2001 Pre-Investment Cost Benefit Study summary lists a variety of open issues. The Subcommittee recommends that FAA provide the performance objectives and quantified results for each of the nine initiatives to better understand the program status.

Questions for REDAC

Should we:

1. Meet with the FAA COO when named.
2. Invite NATCA, PASS, Airport, and Airline Dispatch organizations to participate in the subcommittee activities.